

# Work Order ID 91484

**\*91484\***

Page 1

Item ID: D4543-4

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Retainer, Outer, RH

Start Date: 10/10/2012 Start Qty: 15.00

**\*15\***

Cust Item ID:

Required Date: 09/11/2012 Req'd Qty: 15.00

**\*15\***

Customer:

Reference:

Approvals: Process Plan: MLJ

Date: 12-10-10 Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D4543

A

100

0.00

**\*100\***

Waterjet

Memo

0.00

FLOW CNC Waterjet

02061.037

1- Cut as per dwg

Prog rev: A

Dwg rev: B

2- Deburr

15

0

Jm 12-10-19

110

QC2- Inspect parts off machine FAI/FAIB

0.00

**\*110\***

QC

Memo

0.00

Quality Control

15

0

Jm 12-10-19

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											

FAULT CATEGORY			
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other

# Work Order ID 91484

October-10-12 2:49:45 PM

**\*91484\***

Page 2

Item ID: D4543-4

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Retainer, Outer, RH

Start Date: 10/10/2012 Start Qty: 15.00

**\*15\***

Cust Item ID:

Required Date: 09/11/2012 Req'd Qty: 15.00

**\*15\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

120

QC8- Inspect parts - second check

0.00

Smb

**\*120\***

0.00

12-10-19

QC

Memo

Quality Control

IS

130

0.00

**\*130\***

0.00

Small Fab

Memo

Small Fab

FORM ON BEAD ROLLER (DT9787)

15

φ

FF  
12-10-26

140

QC5- Inspect part completeness to step on W/O

0.00

**\*140\***

0.00

QC

Memo

Quality Control

DAS  
15  
12-10-20

IS

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>						
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Supplier <input type="checkbox"/>												
Training <input type="checkbox"/>												
Unapproved <input type="checkbox"/>												
<b>FAULT CATEGORY</b>												
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# Work Order ID 91484

October-10-12 2:49:45 PM

**\*91484\***

Page 3

Item ID: D4543-4

Accept

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Retainer, Outer, RH

Start Date: 10/10/2012 Start Qty: 15.00

**\*15\***

Cust Item ID:

Required Date: 09/11/2012 Req'd Qty: 15.00

**\*15\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150 Chemical Conversion Coat per QSI005 4.1

0.00

**\*150\***

HandFinish

Memo

0.00

Hand Finishing

15 NB 12-10-29

160 QC7-Inspect Chemical Conversion Coat

0.00

**\*160\***

QC

Memo

0.00

Quality Control

DAS  
15  
2-89  
12/10/29

15

170 Identify as per dwg & Stock Location: 158

0.00

**\*170\***

Packaging

Memo

0.00

Packaging

15 82 12/10/29

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>						
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**Work Order ID 91484****\*91484\***

Page 4

Item ID: D4543-4

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Retainer, Outer, RH

Start Date: 10/10/2012 Start Qty: 15.00

**\*15\***

Cust Item ID:

Required Date: 09/11/2012 Req'd Qty: 15.00

**\*15\***

Customer:

Reference:

Approvals:

Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

180

QC21 - Final Inspection - Work Order Release

0.00

**\*180\***

QC

Memo

0.00

Quality Control

12/10/31

MLJ 12-10-29

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
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# Picklist Print

October-10-12 2:49:49 PM

Page 1

Work Order ID: 91484

\*91484\*

Parent Item: D4543-4

\*D4543-4\*

Parent Item Name: Retainer, Outer, RH

Start Date: 10/10/2012

Required Date: 09/11/2012

Start Qty: 15.00

Required Qty: 15.00

Comments: IPP revA 12.01.12 New Issue EC verified by:DD  
REV:B 12.02.24 as per dwg reva DD verf:EC IPP

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
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M6061T6S.032		Purchased	No			100	sf	700.0600	1.144	18.06316			
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\*M6061T6S 032\*

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18.1

Jm 12-10-19

6061-T6 Sheet 0.032"

Location	Loc Qty	Loc Code
MAT021	700.06	
121099	85.97	
122256	40.89	
122737	30.1	
123097	91.1	
123135	96	
123137	356	

123293

123293

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

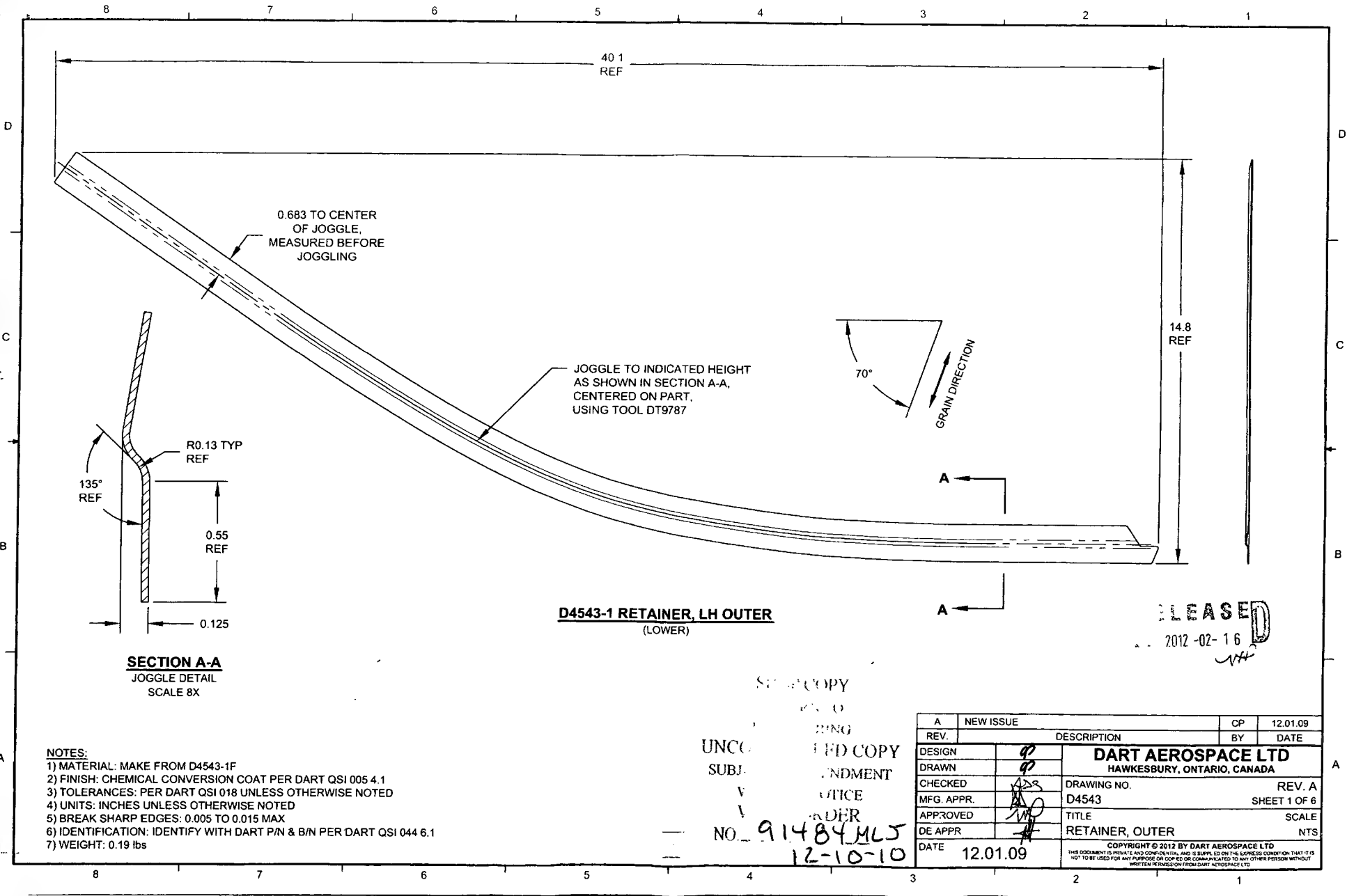
DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
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**NOTES:**

- 1) MATERIAL: MAKE FROM D4543-1F
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.015 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N & B/N PER DART QSI 044 6.1
- 7) WEIGHT: 0.19 lbs

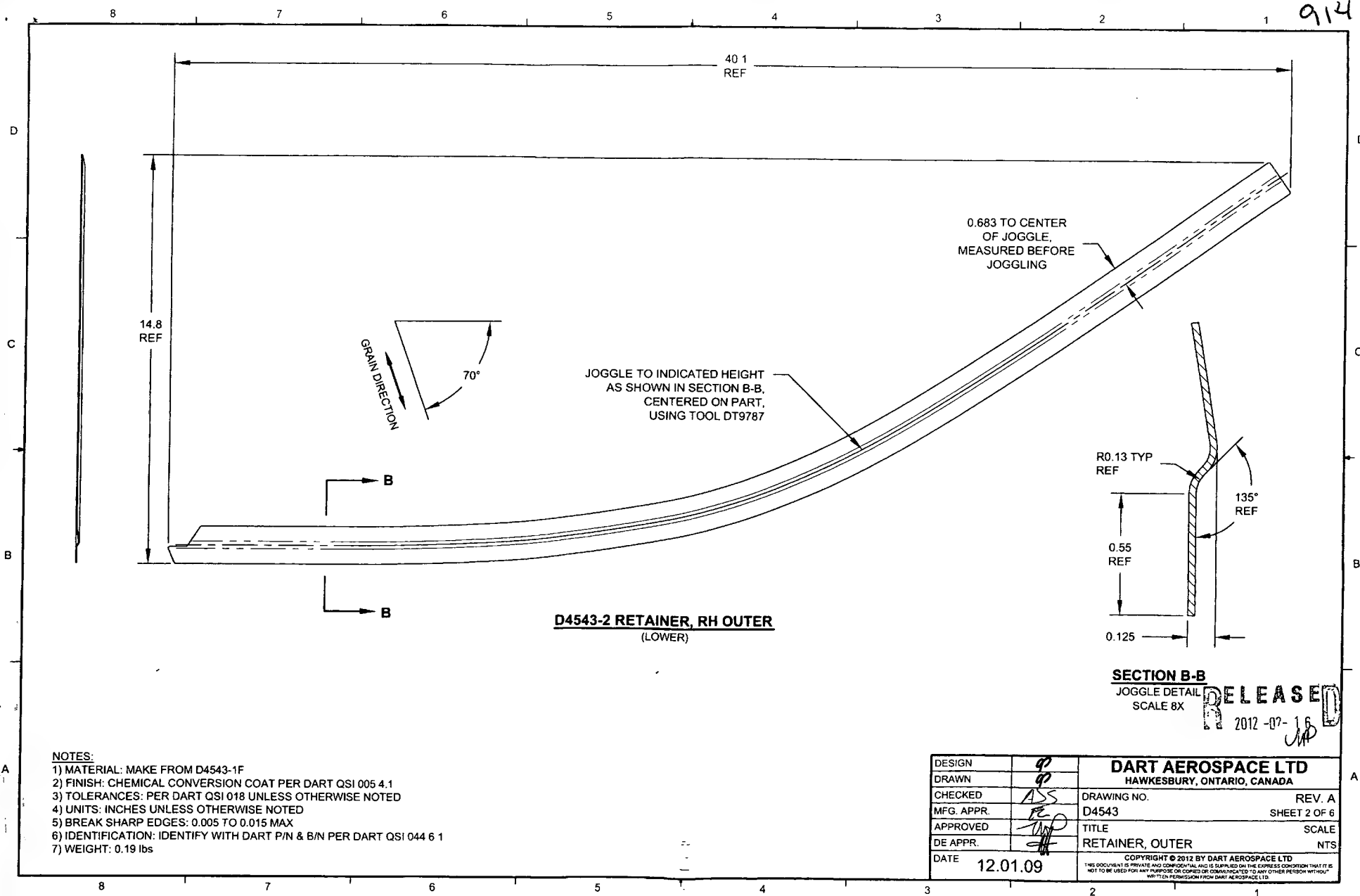
UNCONTROLLED COPY  
SUBJ: RETAINER, LH OUTER  
NO. 91484 MJS  
12-10-10

A		NEW ISSUE		CP	12.01.09
REV.	DESCRIPTION			BY	DATE
DESIGN		<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA  DRAWING NO. D4543  REV. A SHEET 1 OF 6  SCALE NTS			
DRAWN					
CHECKED					
MFG. APPR.					
APPROVED					
DE APPR		RETAINER, OUTER			
DATE	12.01.09	COPYRIGHT © 2012 BY DART AEROSPACE LTD <small>THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR FOR COPIES OR COMMUNICATION TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small>			

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91484



**NOTES:**

- 1) MATERIAL: MAKE FROM D4543-1F
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.015 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N & B/N PER DART QSI 044 6.1
- 7) WEIGHT: 0.19 lbs

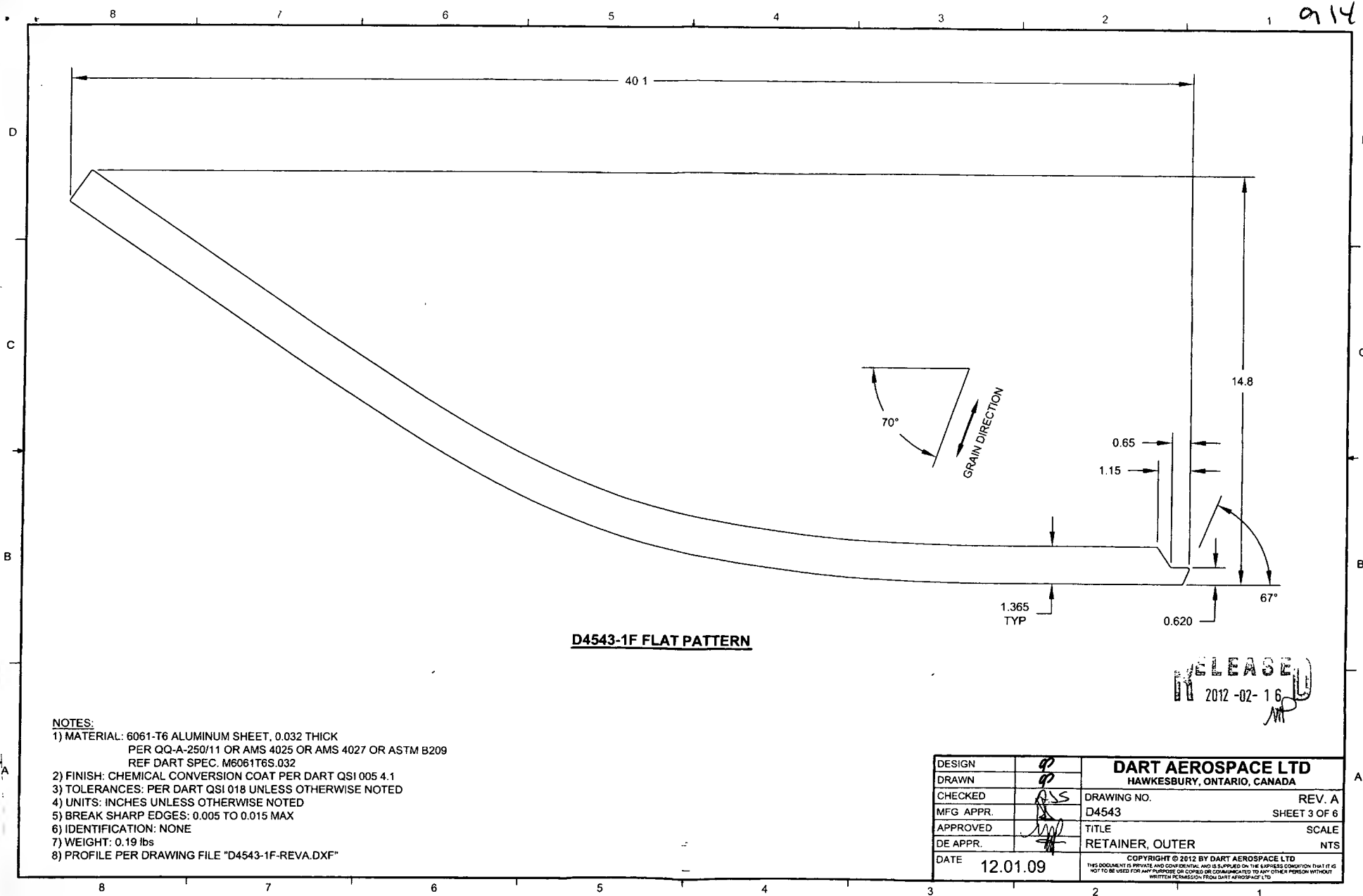
DESIGN	<i>P</i>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	<i>P</i>		
CHECKED	<i>ASS</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>FE</i>	D4543	SHEET 2 OF 6
APPROVED	<i>THP</i>	TITLE	SCALE
DE APPR.	<i>THP</i>	RETAINER, OUTER	NTS
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**RELEASED**  
2012-07-16





91484



**NOTES:**

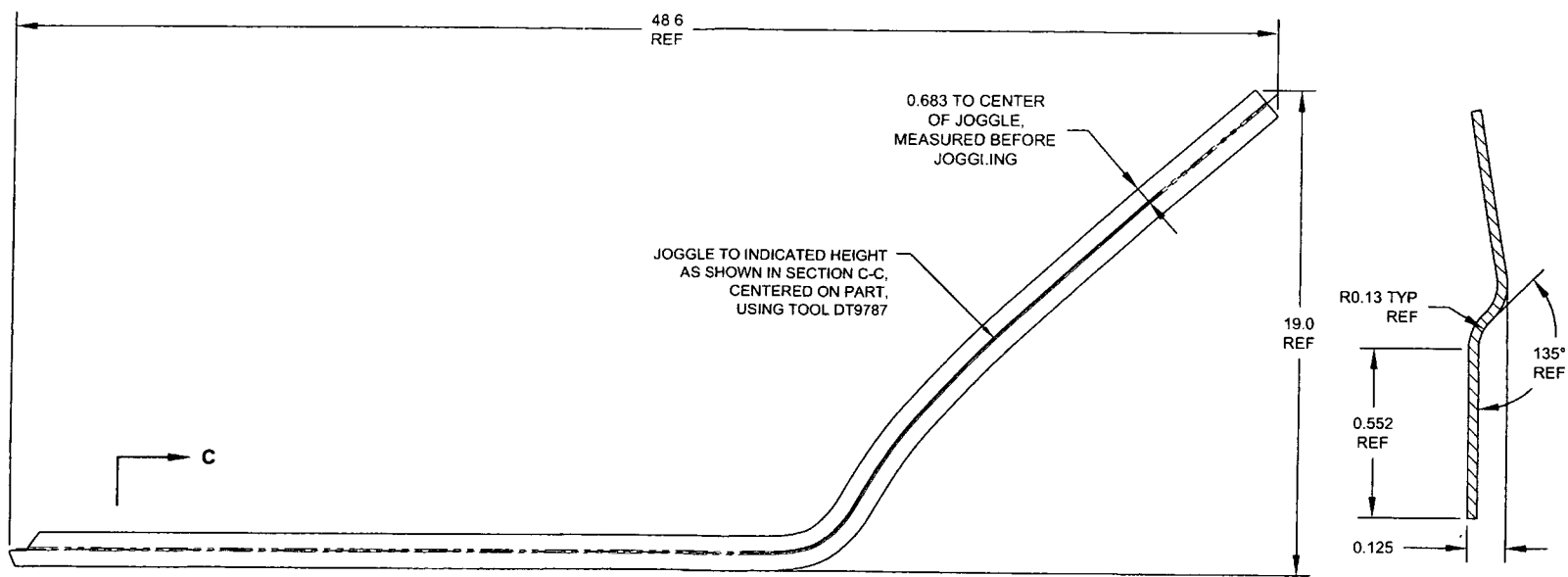
- 1) MATERIAL: 6061-T6 ALUMINUM SHEET, 0.032 THICK  
PER QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209  
REF DART SPEC. M6061T6S.032
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.015 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.19 lbs
- 8) PROFILE PER DRAWING FILE "D4543-1F-REVA.DXF"

RELEASED  
2012-02-16

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG APPR.		D4543	SHEET 3 OF 6
APPROVED		TITLE	SCALE
DE APPR.		RETAINER, OUTER	NTS
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**SECTION C-C**  
JOGGLE DETAIL  
SCALE 12X

**D4543-3 RETAINER, LH OUTER**  
(SIDE/TOP)

RELEASED  
2012-02-16

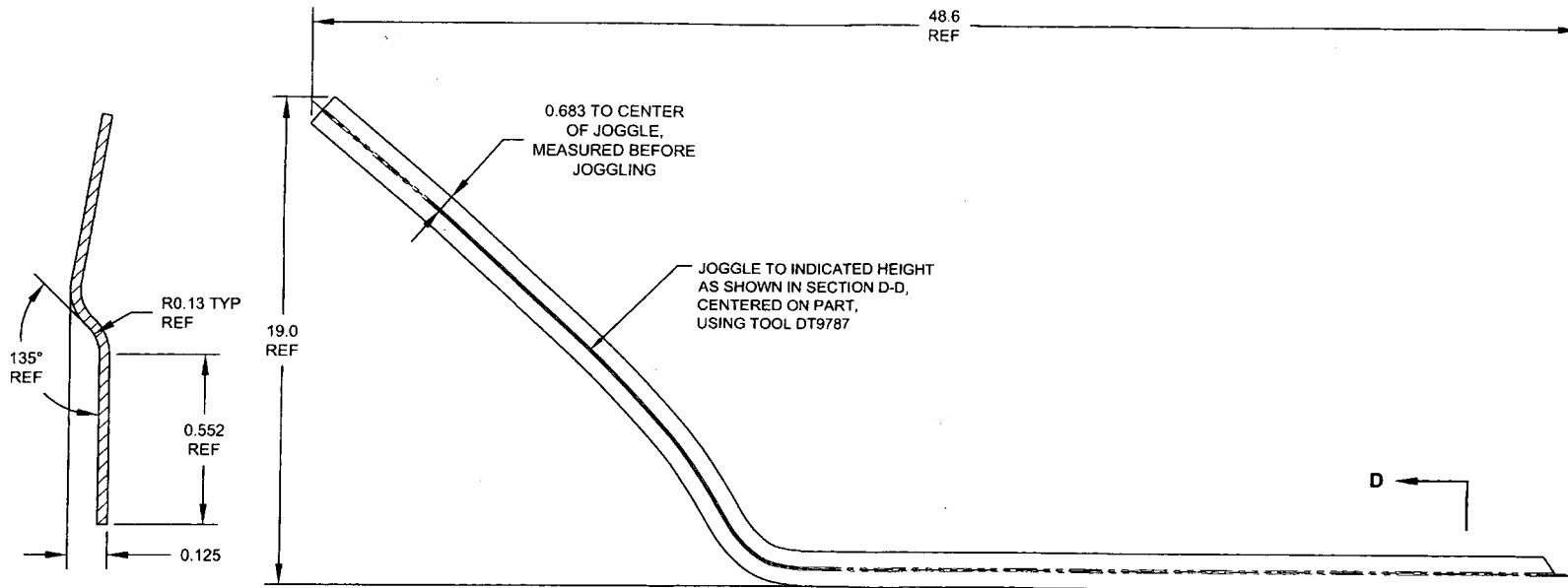
**NOTES:**

- 1) MATERIAL: MAKE FROM D4543-3F
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES. 0.005 TO 0.015 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N & B/N PER DART QSI 044 6.1
- 7) WEIGHT: 0.24 lbs

DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4543	SHEET 4 OF 6
APPROVED		TITLE	SCALE
DE APPR.		RETAINER, OUTER	NTS
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**SECTION D-D**  
JOGGLE DETAIL  
SCALE 12X

**D4543-4 RETAINER, RH OUTER**  
(SIDE/TOP)

RELEASED  
2012-02-16

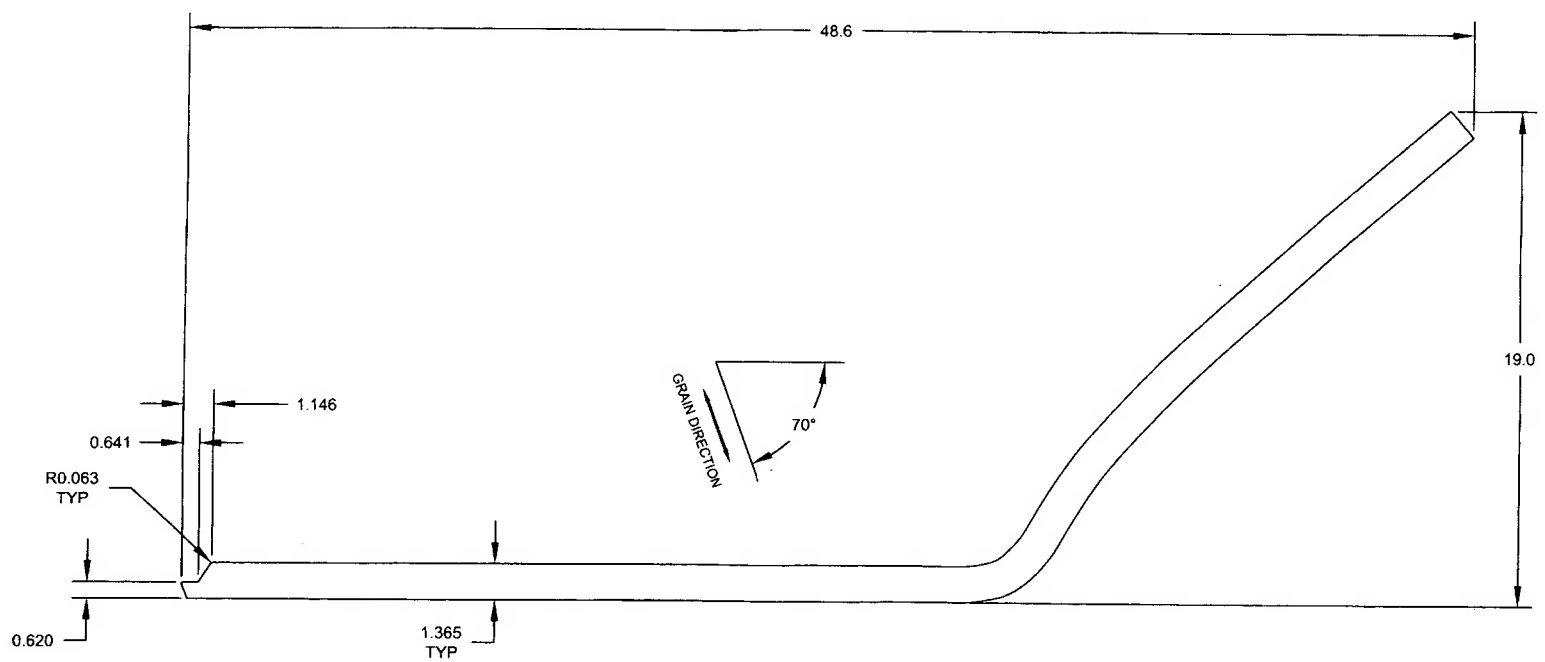
**NOTES:**

- 1) MATERIAL: MAKE FROM D4543-3F
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.015 MAX
- 6) IDENTIFICATION: IDENTIFY WITH DART P/N & B/N PER DART QSI 044 6.1
- 7) WEIGHT: 0.24 lbs

DESIGN	P	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	P		
CHECKED	AS	DRAWING NO.	REV. A
MFG. APPR.		D4543	SHEET 5 OF 6
APPROVED		TITLE	SCALE
DE APPR.		RETAINER, OUTER	NTS
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91484



**D4543-3F FLAT PATTERN**

RELEASED  
2012-02-16

**NOTES:**

- 1) MATERIAL: 6061-T6 ALUMINUM SHEET, 0.032 THICK  
PER QQ-A-250/11 OR AMS 4025 OR AMS 4027 OR ASTM B209  
REF DART SPEC. M6061T6S.032
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.015 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.24 lbs
- 8) PROFILE PER DRAWING FILE "D4543-3F-REVA.DXF"

DESIGN	<i>Q</i>	<b>DART AEROSPACE LTD</b>	
DRAWN	<i>Q</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>ASS</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D4543	SHEET 6 OF 6
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	RETAINER, OUTER	NTS
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